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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,327	07/26/2001	Masahito Ohe	501.36702CX2	8370

20457 7590 01/16/2004

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EXAMINER

CHUNG, DAVID Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/912,327	OHE ET AL.	
	Examiner	Art Unit	
	David Y. Chung	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-20 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-20 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/185,647.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4-20, 25-28 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. 6,091,471) in further view of Gibbons et al. (U.S. 5,817,743), Yamazaki et al. (U.S. 6,160,600), Gibbons et al. (U.S. 6,061,138), Tanaka (U.S. 5,893,990), and Kusumoto et al. (U.S. 6,027,960).

As to claims 1, 8, 13, 18 and 30, Kim et al. discloses a method of manufacturing a liquid crystal cell. Kim et al. discloses that the second alignment layer 9 is exposed to ultraviolet light by the photo-irradiation device shown in figure 3. See column 5, lines 10-12. Kim et al. discloses aligning the first alignment layer using light instead of rubbing so as to increase yield by eliminating damage caused by the rubbing process. See column 8, lines 57-60. Kim et al. teaches that the disclosed method can be adapted to the various types of liquid crystal cells such as IPS mode devices by controlling the alignment direction. See column 8, lines 53-56.

Kim et al. does not disclose that the pixel electrode and common electrode are formed of the same material. Yamazaki et al. discloses an IPS device in which two kinds of electrodes that are electrically insulated from each other are formed on a first substrate. The fundamental structure of the electrodes is shown in figure 2. Yamazaki et al. teaches that if both electrodes are made from a material having transparency such as ITO, then the aperture ratio of the pixels can be enhanced. See column 4, lines 40-60. It would have been obvious to one of ordinary skill in the art at the time of invention to make both pixel and counter electrodes in an IPS device from a material having transparency such as ITO in order to enhance the aperture ratio of the pixels.

Kim et al. does not disclose heating the substrate during irradiation. Gibbons et al. (U.S. 5,817,743) teaches that heating may further impact the efficiency of the alignment process and the exposure energy required. Additional heating may increase the mobility of the molecules during exposure and improve the alignment quality of the alignment layer. See column 16, line 66 – column 17, line 8. It would have been obvious to one of ordinary skill in the art at the time of invention to heat the substrate during irradiation because of the improved quality of the resulting alignment layer.

Kim et al. does not disclose moving the substrate on a stage during exposure. Gibbons et al. (U.S. 6,061,138) teaches that a means of transporting the substrate relative to the optical radiation (such as a linear translation stage) allows the exposure area to be smaller than the substrate dimension. A complete scan will uniformly exposure the substrate. A further advantage with this approach is that it is compatible with continuous motion assembly lines. See column 5, lines 47-63. It would have been

obvious to one of ordinary skill in the art at the time of invention to use a movable stage because of the aforementioned benefits.

Kim et al. does not disclose heating the substrate with the movable stage. However, this was conventional at the time of invention as shown by Tanaka and Kusumoto et al. Tanaka discloses a movable stage 37 that includes heating means for heating the substrates 10, as shown in figures 1 and 2. See column 6, lines 52-61. Kusumoto et al. discloses keeping substrate 105 at a constant temperature using a heater disposed in table 106, as shown in figure 1. See column 7, lines 50-55. It would have been obvious to one of ordinary skill in the art at the time of invention to heat the substrate with the movable stage because it was simple and cost-effective.

As to claims 5, 10 and 15, Kim et al. discloses using a mercury lamp as the light source. See column 5, lines 10-20.

As to claims 4, 9 and 14, Kim et al. does not disclose using a laser as the light source. However, Gibbons et al. (U.S. 5,817,743) teaches that lasers (e.g. argon, helium neon, or helium cadmium) were an art recognized equivalent to the mercury lamp disclosed by Kim et al. It would have been obvious to one of ordinary skill in the art at the time of invention to use a laser as the light source instead of a mercury lamp, because it was an art recognized equivalent.

As to claims 6, 11, 16 and 19, Kim et al. teaches that the disclosed method can be adapted to the various types of liquid crystal cells such as IPS mode devices by controlling the alignment direction. See column 8, lines 53-56.

As to claims 7, 12 and 17, Kim et al. does not disclose making the orientation axes of the upper and lower alignment layers parallel to one another. However, it was well known and obvious to have the two axes parallel to one another in order to create a uniform alignment condition across the entire liquid crystal layer. It would have been obvious to one of ordinary skill in the art at the time of invention to make the orientation axes of the upper and lower alignment layers parallel to one another for the aforementioned reason.

As to claim 20, Kim et al. does not disclose a specific size for the display. However, it was well known that displays that were 10 inches or larger (such as computer monitors, laptop displays, and televisions) represented the most profitable portion of the display market. It would have been obvious to one of ordinary skill in the art at the time of invention to make the size of the display 10 inches or larger so that the teachings of Kim et al. could be applied to the most profitable displays.

As to claims 25-28, Kim et al. does not disclose that the pixel electrode and common electrode are formed of the same material. Yamazaki et al. discloses an IPS device in which two kinds of electrodes that are electrically insulated from each other

are formed on a first substrate. The fundamental structure of the electrodes is shown in figure 2. Yamazaki et al. teaches that if both electrodes are made from a material having transparency such as ITO, then the aperture ratio of the pixels can be enhanced. See column 4, lines 40-60. It would have been obvious to one of ordinary skill in the art at the time of invention to make both pixel and counter electrodes in an IPS device from a material having transparency such as ITO in order to enhance the aperture ratio of the pixels.

2. Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. 6,091,471) in further view of Yamazaki et al. (U.S. 6,160,600).

Kim et al. discloses a method of manufacturing a liquid crystal cell. Kim et al. discloses that the second alignment layer 9 is exposed to ultraviolet light by the photo-irradiation device shown in figure 3. See column 5, lines 10-12. Kim et al. discloses aligning the first alignment layer using light instead of rubbing so as to increase yield by eliminating damage caused by the rubbing process. See column 8, lines 57-60. Kim et al. teaches that the disclosed method can be adapted to the various types of liquid crystal cells such as IPS mode devices by controlling the alignment direction. See column 8, lines 53-56.

Kim et al. does not disclose that the pixel electrode and common electrode are formed of the same material. Yamazaki et al. discloses an IPS device in which two kinds of electrodes that are electrically insulated from each other are formed on a first

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substrate. The fundamental structure of the electrodes is shown in figure 2. Yamazaki et al. teaches that if both electrodes are made from a material having transparency such as ITO, then the aperture ratio of the pixels can be enhanced. See column 4, lines 40-60. It would have been obvious to one of ordinary skill in the art at the time of invention to make both pixel and counter electrodes in an IPS device from a material having transparency such as ITO in order to enhance the aperture ratio of the pixels.

Response to Arguments

Applicant's arguments with respect to claims 1, 4-20 and 25-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.


ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

David Chung
GAU 2871
01/11/04